

**MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III - CONTROL OF AIR CONTAMINANTS**

**RULE 322
POWER PLANT OPERATIONS**

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**MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III - CONTROL OF AIR CONTAMINANTS**

**RULE 322
POWER PLANT OPERATIONS**

SECTION 100 – GENERAL

- 101 PURPOSE:** To limit the discharge of nitrogen oxides, sulfur oxides, particulate matter and carbon monoxide emissions into the atmosphere from stationary fossil-fuel-fired electric utility stationary gas turbines, stationary fossil-fuel-fired electric utility steam generating units, and stationary fossil-fuel-fired cogeneration steam generating units and to limit particulate matter emissions from cooling towers associated with this equipment.
- 102 APPLICABILITY:** This rule applies to the following types of equipment that burn fossil fuel:
- 102.1** Each electric utility steam generating unit or cogeneration steam generating unit used to generate electric power that has a rated heat input capacity greater than or equal to 100 million (MM) British thermal units per hour (Btu/hour) based upon the lower heating value of the fuel.
- 102.2** Each electric utility stationary gas turbine with a rated heat input capacity at peak load greater than or equal to 10 MMBtu/hour based upon the lower heating value of the fuel.
- 102.3** Each cooling tower associated with the type of equipment listed in Sections 102.1 and 102.2 of this rule.
- 102.4 NSPS & NESHAP:** In addition to this rule, facilities may be subject to New Source Performance Standards (NSPS) in Rule 360 and/or National Emission Standards for Hazardous Air Pollutants (NESHAP) in Rule 370 of these rules.
- 103 EXEMPTIONS:** This rule shall not apply to the following types of equipment:
- 103.1** Combustion equipment associated with nuclear power plant operations; or
- 103.2** Reciprocating internal combustion engines.
- 104 PARTIAL EXEMPTIONS:**
- 104.1** Stationary gas turbines that meet any of the criteria listed below are exempt from Sections 301, 306, 307, 501.4, 503.3, 503.4, 503.5, and 503.6 of this rule:
- a. Used for fire-fighting
 - b. Used for flood control
 - c. Engaged by manufacturers in research and development of equipment for either gas turbine emission control techniques or gas turbine efficiency improvements

- 104.2** While firing emergency fuel during a natural gas curtailment or natural gas emergency, any equipment listed in Section 102 of this rule that is normally fired with natural gas is exempt from Sections 301, 306, 307, 501.4, 503.3, 503.4, 503.5, and 503.6 of this rule. This exemption shall not exceed 168 hours per calendar year per combustion unit, excluding hours of operation for testing, reliability, training, and maintenance.
- 104.3** While firing emergency fuel for purposes of testing, reliability, training and maintenance, any equipment listed in Section 102 of this rule that is normally fired with natural gas is exempt from Sections 301, 306, 307, 501.4, 503.3, 503.4, 503.5, and 503.6 of this rule. This exemption shall not exceed 36 hours per calendar year per combustion unit, excluding hours of operation during natural gas curtailments and natural gas emergencies.
- 104.4** Any equipment listed in Section 102 of this rule that operates at or below 10 percent calendar year annual capacity factor, and meets the requirements in 104.4 a, b, and c is exempt from Sections 306 and 307 of this rule.
- a.** An owner or operator must submit a RACT analysis to the Control Officer and the Administrator demonstrating conventional commercially-available control technology is not technically and/or economically feasible and obtain approval from the Control Officer and Administrator to operate under the exemption.
 - (1)** For equipment for which a RACT analysis was submitted prior to June 23, 2021, upon Control Officer approval, equipment may begin to operate under the exemption until the Administrator approves or denies operation under the exemption. If the Administrator denies approval to operate under the exemption, the equipment will become subject to the emission limits in Sections 306 and 307.
 - (2)** For equipment for which a RACT analysis is submitted on or after June 23, 2021, equipment may begin to operate under the exemption upon approval from the Control Officer and the Administrator.
 - b.** All equipment operated under this exemption shall have an annual heat input limit associated with that equipment that corresponds to the 10 percent calendar year annual capacity factor. The annual heat input limit shall be calculated by multiplying the equipment's maximum heat input rate (MMBtu per hour) by 876 hours. An owner or operator with equipment approved to operate under the exemption shall submit an application to modify the permit associated with the equipment to include an annual heat input limit within 60 days of the Control Officer's approval.
 - c.** To demonstrate compliance with the heat input limit an owner or operator shall multiply the higher heating value (MMBtu/mass or MMBtu/volume of gas) by the fuel use (mass or volume of gas).

SECTION 200 – DEFINITIONS: For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100 (General Provisions and Definitions) of these rules. In the event of any inconsistency between any of the Maricopa County air pollution control rules, the definitions in this rule take precedence.

- 201 ANNUAL CAPACITY FACTOR:** The ratio between the actual heat input to a stationary gas turbine or steam generating unit from the fuels burned during a calendar year and the potential heat input to the stationary gas turbine or steam generating unit had it been operated for 8,760 hours at the maximum rated heat input capacity.
- 202 COGENERATION STEAM GENERATING UNIT:** A steam or hot water generating unit that simultaneously produces both electrical and useful thermal energy (such as heat or steam) from the same primary energy source and supplies more than one-third of its potential electric output to any utility power distribution system for sale.
- 203 COMBINED CYCLE TURBINE SYSTEM:** A type of stationary gas turbine wherein heat from the turbine exhaust is recovered by a steam generating unit, with or without supplemental heat (i.e. duct burner), to make steam for use in a steam-electric turbine.
- 204 COMBUSTION CONTROL SYSTEM:** Equipment or technology that suppress NO_x formation during combustion of fossil fuels, including but not limited to, water injection or low-NO_x burners.
- 205 CONTINUOUS EMISSION MONITORING SYSTEM (CEMS):** The total equipment required to sample, analyze, measure, and provide a permanent record of emissions by means of readings recorded at least once every 15 minutes (using an automated data acquisition and handling system (DAHS)).
- 206 COOLING TOWERS:** Open water recirculating devices that use fans or natural draft to draw or force air through the device to cool water by evaporation and direct contact.
- 207 DRIFT:** Water droplets, bubbles, and particulate matter that escape from cooling tower stacks.
- 208 DRIFT ELIMINATOR:** Device used to remove drift from cooling tower exhaust air, thus reducing water loss by relying on rapid changes in velocity and direction of air-droplet mixtures by impaction on eliminator passage surfaces. A drift eliminator is not categorized as an emission control system but is an inherent part of the cooling tower's design requirements.
- 209 DRIFT RATE:** Percentage (%) of circulating water flow rate that passes through a drift eliminator on a cooling tower.
- 210 ELECTRIC UTILITY STATIONARY GAS TURBINE:** Any stationary gas turbine that is constructed for the purpose of supplying more than 1/3 of its potential electric output capacity to any utility power distribution system for sale.
- 211 ELECTRIC UTILITY STEAM GENERATING UNIT:** Any equipment that combusts fossil fuel to generate steam that is used to drive an electrical generator and is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electric output to any utility power distribution system for sale.
- 212 EMERGENCY FUEL:** Fuel fired only during circumstances such as natural gas emergency, natural gas curtailment, or breakdown of delivery system such as an unavoidable

interruption of supply that makes it impossible to fire natural gas in the unit. Fuel is not considered emergency fuel if it is used to avoid either peak demand charges or high gas prices during on-peak price periods or due to a voluntary reduction in natural gas usage by the power company. For the purposes of this definition, emergency fuel also includes fuel used for purposes of testing, reliability, training, and maintenance.

- 213 EMISSION CONTROL SYSTEM (ECS):** Post-combustion systems that are designed and operated in accordance with good engineering practice to reduce emissions from combustion equipment. A combustion control system is not an emission control system.
- 214 FOSSIL FUEL:** Naturally occurring carbonaceous substances from the ground such as natural gas, petroleum, coal, and any form of solid, liquid, or gaseous fuel derived from such material for the purpose of creating energy.
- 215 FUEL SWITCHING STARTUP PROCESS:** The act of changing from one type of fuel to a different type of fuel.
- 216 HEAT INPUT:** Heat derived from the combustion of fuel, not including the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources, such as gas turbines, internal combustion engines, and kilns.
- 217 HIGHER HEATING VALUE (HHV) OR GROSS HEATING VALUE:** The amount of heat produced by the complete combustion of a unit quantity of fuel determined by a calorimeter wherein the combustion products are cooled to the temperature existing before combustion and all of the water vapor is condensed to liquid.
- 218 LOW SULFUR OIL:** Fuel oil containing less than or equal to 0.05% by weight of sulfur.
- 219 LOWER HEATING VALUE (LHV) OR NET HEATING VALUE:** The amount of heat produced by the complete combustion of a unit quantity of fuel determined by a calorimeter wherein the combustion products are cooled to the temperature existing before combustion and all of the water vapor remains as vapor and is not condensed to a liquid. The value is computed from the higher heating value by subtracting the water originally present as moisture and the water formed by combustion of the fuel.
- 220 NATURAL GAS:** A naturally occurring fluid mixture of hydrocarbons (e.g., methane, ethane, or propane) produced in geological formations beneath the earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions and contains 20 grains or less of total sulfur per 100 standard cubic feet.
- 221 NATURAL GAS CURTAILMENT:** An interruption in natural gas service, such that the daily fuel needs of a combustion unit cannot be met with natural gas available due to one of the following reasons, beyond the control of the owner or operator:
- 221.1** An unforeseeable failure or malfunction, not resulting from an intentional act or omission that the governing state, federal or local agency finds to be due to an act of gross negligence on the part of the owner or operator; or
 - 221.2** A natural disaster; or

- 221.3 The natural gas is curtailed pursuant to governing state, federal or local agency rules or orders; or
- 221.4 The serving natural gas supplier provides notice to the owner or operator that, with forecasted natural gas supplies and demands, natural gas service is expected to be curtailed pursuant to governing state, federal or local agency rules or orders.
- 222 **OPACITY:** A condition of the ambient air, or any part thereof, in which an air contaminant partially or wholly obscures the view of an observer.
- 223 **OPERATING DAY:** A 24-hour period between 0000 and 2359 during which any fuel is combusted at any time in the unit. It is not necessary for fuel to be combusted continuously for the entire 24-hour period.
- 224 **OPERATING HOUR:** A clock hour during which a unit combusts any fuel, either for part of the hour or for the entire hour.
- 225 **PARTICULATE MATTER EMISSIONS:** Any and all particulate matter emitted to the ambient air as measured by applicable state and federal test methods.
- 226 **PARTS PER MILLION BY VOLUME DRY (PPMVD):** A unit of proportion used to express concentration that is corrected to a dry basis.
- 227 **PEAK LOAD:** 100% of the manufacturer's design capacity of a gas turbine at 288° Kelvin, 60% relative humidity, and 101.3 kilopascals pressure (ISO standard day conditions).
- 228 **POWER PLANT OPERATION:** An operation whose purpose is to supply more than one-third of its potential electric output capacity to any utility power distribution system for sale.
- 229 **RATED HEAT INPUT CAPACITY:** The heat input capacity in million Btu/hr. as specified on the nameplate of the combustion unit. If the combustion unit has been altered or modified such that its maximum heat input is different than the heat input capacity on the name plate, the maximum heat input shall be considered the rated heat input capacity.
- 230 **REGENERATIVE CYCLE GAS TURBINE:** Any stationary gas turbine that recovers thermal energy from the exhaust gases and utilizes the thermal energy to preheat air prior to entering the combustion unit.
- 231 **SIMPLE CYCLE GAS TURBINE:** Any stationary gas turbine that does not recover heat from the gas turbine exhaust gases to preheat the inlet combustion air to the gas turbine and does not recover heat from the gas turbine exhaust gases to heat water or generate steam.
- 232 **STATIONARY GAS TURBINE:** Any simple cycle gas turbine, regenerative gas turbine, or any gas turbine portion of a combined cycle turbine system that is not self-propelled or that is attached to a foundation.
- 233 **SULFUR OXIDES (SO_x):** The sum of the oxides of sulfur emitted from the flue gas from a combustion unit that are directly dependent upon the amount of sulfur in the fuel used.

- 234 **THIRTY (30) OPERATING DAY ROLLING AVERAGE:** An arithmetic mean or average of all hourly emission concentrations for 30 successive operating days and calculated by a CEMS at the conclusion of each operating day for the previous 30 operating days.
- 235 **TOTAL DISSOLVED SOLIDS (TDS):** The amount of filterable matter reported in milligrams/liter (mg/l) or parts per million (ppm), as determined by an applicable method in the Standard Methods for the Examination of Water and Wastewater, a conductivity/TDS meter, or ASTM D5907.
- 236 **TWENTY-FOUR (24) HOUR ROLLING AVERAGE:** The arithmetic mean of all hourly emission concentrations measured during the previous 24 operating hours.
- 237 **ULTRA LOW SULFUR OIL:** Fuel oil containing less than or equal to 0.0015 % sulfur by weight.
- 238 **UNCOMBINED WATER:** Condensed water vapor or steam.

SECTION 300 – STANDARDS

- 301 **LIMITATIONS – PARTICULATE MATTER:** An owner or operator of any equipment listed in Section 102.1 or 102.2 of this rule shall burn only natural gas except when firing emergency fuel per Sections 104.2 and 104.3 of this rule. An owner or operator may burn a fuel other than natural gas for non-emergency purposes providing that the fuel shall not cause to be discharged more than 0.007 lbs. of particulate matter per MMBtu. The use of a fuel other than natural gas for non-emergency purposes shall be approved by the Control Officer in an air pollution control permit prior to usage.
- 302 **GOOD COMBUSTION PRACTICES FOR TURBINES:** An owner or operator of any stationary gas turbine listed in Section 102.2 of this rule shall, regardless of fuel type, use operational practices recommended by the manufacturer to ensure good combustion control.
- 302.1 Good combustion practices shall be demonstrated by maintaining the manufacturer's recommended maintenance practices onsite and available to the Control Officer upon request, by maintaining records of all maintenance activities conducted on the turbines, and by conducting performance tests as described in Section 503 (unless exempt from Sections 306 and 307 under the exemption in Section 104.4).
- 302.2 For stationary gas turbines with a CEMS able to demonstrate compliance with the applicable emission limits in Sections 306 and 307, good combustion practices may be demonstrated through continuous compliance with the applicable emission limits in Sections 306 and 307.
- 303 **COOLING TOWERS:** An owner or operator of a cooling tower listed in Section 102.3 of this rule shall:
- 303.1 Equip the cooling tower with a drift eliminator. The drift eliminator shall not be manufactured out of wood.
- 303.2 Limit the value obtained by multiplying the concentration of Total Dissolved Solids (TDS) in the cooling tower water by the percentage of drift rate for the cooling

tower drift eliminator such that the product does not exceed the maximum numerical limit of 20 ppm.

303.3 Visually inspect the drift eliminator according to the following schedule, as applicable depending on the configuration of the drift eliminator:

- a. Monthly, if the drift eliminator can be viewed safely and if the inspection does not require a person to walk into the cooling tower; or
- b. No less than once per year during a regularly scheduled outage when the cooling tower is not operating, if the drift eliminator cannot be safely inspected while the cooling tower is operating.

304 LIMITATIONS – OPACITY:

304.1 An owner or operator shall not discharge into the ambient air from any single source of emissions any air contaminant, other than uncombined water, in excess of 20% opacity, for any six (6) minute averaging period, except as provided in Section 304.2 of this rule.

304.2 Opacity may exceed the applicable limits established in Section 304.1 of this rule during the one hour fuel switching startup process, provided that the Control Officer finds that the owner or operator has, to the extent practicable, maintained and operated the source of emissions in a manner consistent with good air pollution control practices for minimizing emissions. During the one-hour fuel switching startup process, an owner or operator shall not discharge into the ambient air from any single source of emissions any air contaminant, other than uncombined water, in excess of 40% opacity, for any six (6) minute averaging period. The one-hour period shall begin when the fuel switching startup process begins.

304.3 Determination of whether good air pollution control practices are being used shall be based on information provided to the Control Officer upon request, which may include, but is not limited to, the following:

- a. Monitoring results.
- b. Opacity observations.
- c. Review of operating and maintenance procedures.
- d. Inspection of the source.

305 LIMITATIONS – SULFUR IN FUEL: An owner or operator of any equipment listed in Section 102.1 or 102.2 of this rule that burns fuel oil alone or in combination with any other fuel as either emergency fuel or non-emergency fuel shall use either ultra low sulfur oil or low sulfur oil.

306 LIMITATIONS – NITROGEN OXIDES (NO_x):

306.1 RACT Emission Limits:

- a. Existing Steam Generating Units: An owner or operator of any equipment listed in Section 102.1 of this rule that commenced operation prior to June 23, 2021 shall not cause to be discharged into the atmosphere nitrogen oxides in excess of 0.1 lb/MMBtu, calculated as nitrogen dioxide, unless the equipment is operated in

compliance with the case-by-case RACT requirements established in accordance with Section 306.2 of this rule.

- b. New Steam Generating Units: An owner or operator of any equipment listed in Section 102.1 of this rule that commenced operation on or after June 23, 2021 shall not cause to be discharged into the atmosphere nitrogen oxides in excess of the following limits, unless the equipment is operated in compliance with the case-by-case RACT requirements established in accordance with Section 306.2 of this rule.
 - (1) 30 ppmvd corrected to 3% oxygen calculated as nitrogen dioxide when burning gaseous fossil fuel.
 - (2) 40 ppmvd corrected to 3% oxygen calculated as nitrogen dioxide when burning liquid fossil fuel.
- c. Stationary Gas Turbines and Combined Cycle Turbine Systems: An owner or operator of any equipment listed in Section 102.2 of this rule shall not cause to be discharged into the atmosphere nitrogen oxides in excess of the following limits, unless the equipment is operated in compliance with the case-by-case RACT requirements established in accordance with Section 306.2 of this rule.
 - (1) 42 ppmvd corrected to 15% oxygen calculated as nitrogen dioxide when burning gaseous fossil fuel.
 - (2) 65 ppmvd corrected to 15% oxygen calculated as nitrogen dioxide when burning liquid fossil fuel.

306.2 Case-by-Case RACT Requirements: Nothing in this rule shall prevent the owner or operator of any equipment listed in Section 102 of this rule from requesting alternative RACT requirements on a case-by-case basis. An owner or operator shall be exempt from Section 306.1 if the owner or operator fully complies with alternative RACT requirements that are approved by the Control Officer and the Administrator, incorporated into an Air Pollution Control Permit, and approved into the Arizona State Implementation Plan.

307 LIMITATIONS – CARBON MONOXIDE: An owner or operator of any equipment listed in Section 102.1 or 102.2 of this rule shall not cause to be discharged into the atmosphere carbon monoxide (CO) measured in excess of 400 ppmvd corrected to 15% oxygen for stationary gas turbines, and corrected to 3% oxygen for steam generating units.

308 REQUIREMENTS FOR ECS AND ECS MONITORING EQUIPMENT: An owner or operator of an emission control system (ECS) shall:

308.1 Properly install, operate, and maintain in calibration and in good working order devices for indicating temperatures, pressures, transfer rates, rates of flow, or other operating conditions necessary to determine if an ECS is functioning properly and is properly maintained.

308.2 Submit to the Control Officer for approval an Operation and Maintenance (O&M) Plan for any ECS, and any ECS monitoring devices that are used pursuant to this rule or to an air pollution permit. The O&M Plan shall include:

- a. The manufacturer name, model designation, and serial number for each ECS and each ECS monitoring device; and
 - b. Operating parameters that will be monitored to demonstrate continued operation of the ECS in the manner the ECS was operated during the most recent performance test; and
 - c. The manufacturer's recommended maintenance procedures and frequencies or, if the manufacturer's recommended maintenance procedures are not available, a maintenance plan based on good engineering practices to reduce emissions.
- 308.3** Fully comply with all elements of the most recent O&M Plans submitted to the Control Officer, unless notified by the Control Officer in writing.
- 308.4** Submit a revised O&M Plan within 30 business days following receipt of the Control Officer's written notice that an O&M Plan for any ECS or any ECS monitoring device is deficient or inadequate.
- 308.5** Maintain on-site, in a readily accessible location, the most recent O&M Plans for each ECS and each ECS monitoring device.

309 **EMERGENCY FUEL USE NOTIFICATION:** An owner or operator of an electric utility stationary gas turbine, electric utility steam generating unit or cogeneration steam generating unit used to generate electric power that is fired with emergency fuel but is normally fired with natural gas shall notify the Control Officer verbally no later than 24 hours after declaration of the emergency that necessitates its use in compliance with Section 104.2 of this rule. This verbal report shall be followed by a written report within 48 hours of initial emergency fuel usage. The written report shall also include identification of the nature of the emergency, initial dates of usage, and the expected dates of usage. Within 1 business day following the end of an emergency that necessitates the use of emergency fuel, the owner or operator shall submit a written report that includes the total number of hours the combustion equipment was operated with emergency fuel.

SECTION 400 – ADMINISTRATIVE REQUIREMENTS

- 401** **IN EXISTENCE AND IN COMPLIANCE:** The owner or operator of any electric utility stationary gas turbine, electric utility steam generating unit or cogeneration steam generating unit used to generate electric power in existence on June 23, 2021 shall submit a Notification of Compliance within 6 months of becoming subject to Section 306 of this rule. This Notification shall include one of the following demonstrations:
- 401.1** **Demonstration of Compliance with RACT Emission Limits:** For each unit that is in compliance with the RACT emission limits in Section 306.1 of this rule, the Notification of Compliance shall include results from a performance test conducted in accordance with Section 503.4 of this rule, or that a CEMS has been installed (to demonstrate continuous compliance with the RACT emission limits), after June 23, 2020.
 - 401.2** **Demonstration of Compliance with the exemption in Section 104.4:** For each unit that operates at or below 10 percent calendar year annual capacity factor, the Notification of Compliance shall include records of the annual capacity factor for the calendar year previous to the year of rule adoption.

402 IN EXISTENCE AND NON-COMPLIANT:

402.1 Increments of Progress – Installation of Air Pollution Control Equipment:

When an emission control system or a combustion control system will be installed to achieve compliance with the emission limits in Section 306.1 of this rule, the owner or operator shall comply with the following increments of progress and be in compliance with the emission limits by the date specified:

- a. Within 18 months of becoming subject to the emission limits in Section 306.1 of this rule, submit a compliance schedule and permit application to the Control Officer.
- b. Within 36 months of final permit issuance, be fully compliant with the emission limits in Section 306.1 of this rule and submit to the Control Officer a complete source test report indicating compliance.

402.2 Increments of Progress – Removal from Service: The owner or operator of any combustion unit in existence on June 23, 2021 that is expected to be removed from service within 24 months of becoming subject to Section 306.1 of this rule shall be exempt from the emission limits in Section 306.1 of this rule if it complies with the following:

- a. Within 6 months of becoming subject to the limits in Section 306.1 of this rule, submit to the Control Officer a notification of proposed removal from service.
- b. Within 14 months of submitting notification under Section 402.2(a) of this rule, submit to the Control Officer a decommissioning plan and a permit revision providing that the units will be decommissioned by a certain date.
- c. Within 4 months of decommissioning plan and permit revision approval, or within 24 months after becoming subject to the emission limits in Section 306.1 of this rule, whichever comes first, discontinue operation of the electric utility stationary gas turbine, electric utility steam generating unit or cogeneration steam generating unit used to generate electric power, disconnect the fuel supply line(s), and notify the Control Officer in writing of the removal from service.

SECTION 500 – MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: Any owner or operator subject to this rule shall comply with the requirements set forth in this section. Any records and data required by this section shall be kept on site at all times in a consistent and complete manner and be made available without delay to the Control Officer upon request. Records shall consist of the following information:

501.1 Equipment Listed in Section 102 of this Rule: Days and hours of operation, type(s) of fuel used, amount of fuel(s) used each month, and documentation of the sulfur content of any fuel oil combusted (e.g. fuel receipts, contract specifications, pipeline meter tickets, fuel supplier information, purchase records, or analytical results). Records of sulfur content shall provide accurate values for the sulfur content of the fuel based on enforceable test methods approved by the Administrator.

501.2 Cooling Towers: Monthly gravimetric testing reports for TDS in cooling water in the cooling tower shall be recorded for six months in succession and thereafter quarterly

reports shall be recorded. Results of the monthly or yearly visual inspection of the drift eliminator shall also be recorded. If the drift eliminator cannot be visually inspected monthly, then documentation of the physical configuration of the drift eliminator shall be submitted to the Control Officer to demonstrate that the drift eliminator cannot be inspected monthly.

501.3 Emergency Fuel Usage: Type and amount of emergency fuel used, dates and hours of operation using emergency fuel, nature of the emergency or reason for the use of emergency fuel as stated in Sections 104.2 and 104.3 of this rule. At the end of each month, calculate the total hours of operation using emergency fuel during natural gas curtailments and natural gas emergencies, and total hours of operation using emergency fuel for purposes of testing, reliability, training, and maintenance.

501.4 Non-Emergency Fuel Switching: Dates and times, including start and stop times, when any fuel other than natural gas is combusted for non-emergency purposes, as allowed by Section 301 of this rule.

501.5 Continuous Emission Monitoring Systems: All CEMS measurements, results of CEMS performance evaluations, CEMS calibration checks, and adjustments and maintenance performed on these systems.

501.6 Good Combustion Practices:

- a. Good combustion practices shall be demonstrated by maintaining the manufacturer's recommended maintenance practices onsite and available to the Control Officer upon request, by maintaining records of all maintenance activities conducted on the turbines, and by maintaining records of the test results of performance tests conducted under Section 503 (unless exempt from Sections 306 and 307 under the exemption in Section 104.4).
- b. If using CEMS to demonstrate good combustion practices, results of evaluation and of corrective action shall be recorded each time the CEMS indicates an exceedance of the applicable emission limits in Section 306 or 307 of this rule.
- c. For units equipped with water or steam injection, the owner or operator shall maintain continuous records of the water to fuel ratio or the steam to fuel ratio, unless the owner or operator uses CEMS to demonstrate compliance with the emission limits in Sections 306 and 307, as applicable.

502 RECORDS RETENTION: Copies of reports, logs, and supporting documentation required by the Control Officer shall be retained for at least 5 years. Records and information required by this rule shall also be retained for at least 5 years.

503 COMPLIANCE DEMONSTRATION:

503.1 Sulfur Content of the Oil Verification: If the Control Officer requests documentation of the sulfur content of the oil, the owner or operator shall submit one of the following documents which provides the accurate sulfur content of the fuel based on enforceable test methods as approved by the Administrator to determine sulfur content:

- a. Fuel receipts, or

- b. Contract specifications, or
- c. Pipeline meter tickets, or
- d. Fuel supplier information, or
- e. Purchase records, or
- f. Test results of the fuel for sulfur content.

503.2 Drift Rate Verification: An owner or operator shall submit design drift rate verification from the manufacturer of the drift eliminator used in the cooling towers to the Control Officer if proof of the design drift rate is requested by the Control Officer.

503.3 Performance Test-Particulate Matter: An owner or operator of any combustion equipment listed in Section 102 of this rule that burns a fuel other than natural gas for non-emergency purposes shall demonstrate compliance with the emission limit in Section 301 of this rule by conducting an annual performance test. The performance test shall measure particulate matter emissions, including condensable particulate matter emissions, using EPA Reference Method 5 and EPA Reference Method 202, as incorporated by reference in Section 504 of this rule. The result of the performance test shall be the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour.

503.4 Performance Test-Nitrogen Oxides: An owner or operator of any equipment listed in Section 102.1 or 102.2 of this rule that is subject to a numeric emission limit in Section 306 of this rule shall demonstrate compliance with the applicable numeric emission limits by conducting an annual performance test. The performance tests shall measure nitrogen oxide emissions using EPA Reference Method 7 or 7E as incorporated by reference in Section 504 of this rule. The result of the performance test shall be the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour. The concentration of nitrogen oxides shall be measured dry and corrected to 3% oxygen for electric utility steam generating units and cogeneration steam generating units. The concentration of nitrogen oxides shall be measured dry and corrected to 15% oxygen for stationary gas turbines and for combined cycle turbine systems. For units that are equipped with water or steam injection, the ratio of water or steam to fuel shall be measured during the performance test.

- a. For any equipment for which a CEMS is used to demonstrate compliance with Section 306, an annual performance test is not required.
- b. If the NO_x emission result from the performance test is less than or equal to 75 percent of the NO_x emission limit, the owner or operator may reduce the frequency of subsequent performance tests to once every 2 years (no more than 26 calendar months following the previous performance test). If the results of any subsequent performance test exceed 75 percent of the NO_x emission limit, the owner or operator must resume annual performance tests.

503.5 Performance Test-Carbon Monoxide: An owner or operator of any equipment listed in Section 102.1 or 102.2 of this rule that is subject to Section 307 of this rule shall demonstrate compliance with the emission limit in Section 307 of this rule by

conducting an annual performance test. The performance test shall measure carbon monoxide emissions using EPA Reference Method 10 as incorporated by reference in Section 504 of this rule. The result of the performance test shall be the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour. The carbon monoxide concentration shall be measured dry and corrected to 3% oxygen for electric utility steam generating units and cogeneration steam generating units. The carbon monoxide concentration shall be measured dry and corrected to 15% oxygen for stationary gas turbines and for combined cycle turbine systems.

- a. For any equipment for which a CEMS is used to demonstrate compliance with Section 307, an annual performance test is not required.
- b. If the CO emission result from the performance test is less than or equal to 75 percent of the CO emission limit, the owner or operator may reduce the frequency of subsequent performance tests to once every 2 years (no more than 26 calendar months following the previous performance test). If the results of any subsequent performance test exceed 75 percent of the emission limit, the owner or operator must resume annual performance tests.

503.6 CEMS: An owner or operator using a CEMS to demonstrate compliance with Section 302, 306, or 307 shall install, operate, calibrate, maintain, and test the CEMS in accordance with 40 CFR Part 60 or 40 CFR Part 75.

- a. Excess emissions for Section 306 are defined as any period during which the 24-hour rolling average emission concentration exceeds the applicable numeric emission limits.
- b. Excess emissions for Section 307 are defined as any period during which the 30-operating day rolling average emission concentration exceeds the applicable numeric emission limits.

504 COMPLIANCE DETERMINATION – TEST METHODS INCORPORATED BY REFERENCE: The following test methods are approved for use for the purpose of determining compliance with this rule. The test methods are incorporated by reference in Rule 360 and Appendix G of the Maricopa County Air Pollution Control Regulations. Alternative test methods as approved by the Administrator or other EPA-approved test methods may be used upon prior written approval from the Control Officer. When more than one test method is permitted for the same determination, an exceedance under any method will constitute a violation. Copies of test methods referenced in this section are available at the Maricopa County Air Quality Department.

504.1 EPA Reference Methods 1 (“Sample and Velocity Traverses for Stationary Sources”), and 1A (“Sample and Velocity Traverses for Stationary Sources with Small Stacks and Ducts”) (40 CFR 60, Appendix A-1).

504.2 EPA Reference Methods 2 (“Determination of Stack Gas Velocity and Volumetric Flow Rate”), 2A (“Direct Measurement of Gas Volume through Pipes and Small Ducts”), 2C (“Determination of Stack Gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts”), and 2D (“Measurement of Gas Volume Flow Rates in Small Pipes and Ducts”) (40 CFR 60, Appendix A-1).

- 504.3** EPA Reference Methods 3 (“Gas Analysis for the Determination of Dry Molecular Weight”), 3A (“Determination of Oxygen and Carbon Dioxide Concentrations in Emissions From Stationary Sources (Instrumental Analyzer Procedure)”), 3B (“Gas Analysis for the Determination of Emission Rate Correction Factor or Excess Air”), and 3C (“Determination of Carbon Dioxide, Methane, Nitrogen and Oxygen from Stationary Sources”) (40 CFR 60, Appendix A-2).
- 504.4** EPA Reference Method 4 (“Determination of Moisture Content in Stack Gases”) (40 CFR 60, Appendix A-3).
- 504.5** EPA Reference Method 5 (“Determination of Particulate Emissions from Stationary Sources”) (40 CFR 60, Appendix A-3).
- 504.6** EPA Reference Method 202 (“Dry Impinger Method for Determining Condensable Particulate Emissions from Stationary Sources”) (40 CFR 51, Appendix M).
- 504.7** EPA Reference Methods 7 (“Determination of Nitrogen Oxide Emissions from Stationary Sources”), 7A (“Determination of Nitrogen Oxide Emissions from Stationary Sources – Ion Chromatographic Method”), 7B (“Determination of Nitrogen Oxide Emissions from Stationary Sources - Ultraviolet Spectrophotometry”), 7C (“Determination of Nitrogen Oxide Emissions from Stationary Sources - Alkaline-Permanganate Ion Colorimetric Method”), 7D (“Determination of Nitrogen Oxide Emissions from Stationary Sources – Alkaline-Permanganate Chromatographic Method”), and 7E (“Determination of Nitrogen Oxide Emissions from Stationary Sources – Instrumental Analyzer Procedure”) (40 CFR 60, Appendix A-4).
- 504.8** EPA Reference Method 9 (“Visual Determination of the Opacity of Emissions from Stationary Sources”) (40 CFR 60, Appendix A-4).
- 504.9** EPA Reference Method 10 (“Determination of Carbon Monoxide Emissions from Stationary Sources”) (40 CFR 60, Appendix A-4).
- 504.10** EPA Reference Method 20 (“Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines”) (40 CFR 60, Appendix A-7).
- 504.11** ASTM D2622- 05, Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry.
- 504.12** ASTM D4294- 03, Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry.
- 504.13** Standard Methods for the Examination of Water and Wastewater, Method #2540C (“Total Dissolved Solids Dried at 180°C”), American Public Health Association, 19th edition, 1995.
- 504.14** ASTM D5907-13, Standard Methods for Filterable Matter (Total Dissolved Solids) and Nonfilterable Matter (Total Suspended Solids) in Water.
- 504.15** South Coast Air Quality Management District Method 307-91 (“Determination of Sulfur in a Gaseous Matrix”), revised 1994.